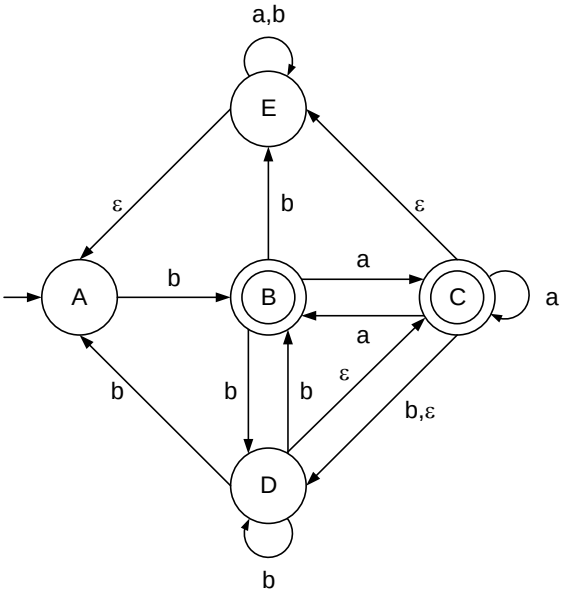
AFN- ε ⇒ AFN

OBJETIVO

Establecer equivalencias entre autómatas finitos no deterministas con transiciones ε y autómatas finitos no deterministas.

EJEMPLO



DESARROLLO

δ	a	b	ε
→A	∅	{B}	∅
*B	{C}	{D, E}	∅
*C	{B, C}	{D}	{D, E}
D	∅	{A, B, D}	{C}
E	{E}	{E}	{A}

C-ε(A) = {A}
C-ε(B) = {B}
C-ε(C) = {A, C, D, E}
C-ε(D) = {A, C, D, E}
C-ε(E) = {A, E}

$\delta'(A, a) = C\text{-}\varepsilon(\delta(C\text{-}\varepsilon(A), a))$
$= C\text{-}\varepsilon(\delta(\{A\}, a))$
$= C\text{-}\varepsilon(\delta(A, a))$
$= C\text{-}\varepsilon(\varnothing)$
$= \varnothing$

$\delta'(A, b) = C\text{-}\varepsilon(\delta(C\text{-}\varepsilon(A), b))$
$= C\text{-}\varepsilon(\delta(\{A\}, b))$
$= C\text{-}\varepsilon(\delta(A, b))$
$= C\text{-}\varepsilon(\{B\})$
$= C\text{-}\varepsilon(B)$
$= \{B\}$

$\delta'(B, a) = C\text{-}\varepsilon(\delta(C\text{-}\varepsilon(B), a))$
$= C\text{-}\varepsilon(\delta(\{B\}, a))$
$= C\text{-}\varepsilon(\delta(B, a))$
$= C\text{-}\varepsilon(\{C\})$
$= C\text{-}\varepsilon(C)$
$= \{A, C, D, E\}$

$\delta'(B, b) = C\text{-}\varepsilon(\delta(C\text{-}\varepsilon(B), b))$
$= C\text{-}\varepsilon(\delta(\{B\}, b))$
$= C\text{-}\varepsilon(\delta(B, b))$
$= C\text{-}\varepsilon(\{D, E\})$
$= C\text{-}\varepsilon(D) \cup C\text{-}\varepsilon(E)$
$= \{A, C, D, E\} \cup \{A, E\}$
$= \{A, C, D, E\}$

$\delta'(C, a) = C\text{-}\varepsilon(\delta(C\text{-}\varepsilon(C), a))$
$= C\text{-}\varepsilon(\delta(\{A, C, D, E\}, a))$
$= C\text{-}\varepsilon(\delta(A, a) \cup \delta(C, a) \cup \delta(D, a) \cup \delta(E, a))$
$= C\text{-}\varepsilon(\varnothing \cup \{B, C\} \cup \varnothing \cup \{E\})$
$= C\text{-}\varepsilon(\{B, C, E\})$
$= C\text{-}\varepsilon(B) \cup C\text{-}\varepsilon(C) \cup C\text{-}\varepsilon(E)$
$= \{B\} \cup \{A, C, D, E\} \cup \{A, E\}$
$= \{A, B, C, D, E\}$

$\delta'(C, b) = C\text{-}\varepsilon(\delta(C\text{-}\varepsilon(C), b))$
$= C\text{-}\varepsilon(\delta(\{A, C, D, E\}, b))$
$= C\text{-}\varepsilon(\delta(A, b) \cup \delta(C, b) \cup \delta(D, b) \cup \delta(E, b))$
$= C\text{-}\varepsilon(\{B\} \cup \{D\} \cup \{A, B, D\} \cup \{E\})$
$= C\text{-}\varepsilon(\{A, B, D, E\})$
$= C\text{-}\varepsilon(A) \cup C\text{-}\varepsilon(B) \cup C\text{-}\varepsilon(D) \cup C\text{-}\varepsilon(E)$
$= \{A\} \cup \{B\} \cup \{A, C, D, E\} \cup \{A, E\}$
$= \{A, B, C, D, E\}$

$\delta'(D, a) = C\text{-}\varepsilon(\delta(C\text{-}\varepsilon(D), a))$
$= C\text{-}\varepsilon(\delta(\{A, C, D, E\}, a))$
$= C\text{-}\varepsilon(\delta(A, a) \cup \delta(C, a) \cup \delta(D, a) \cup \delta(E, a))$
$= C\text{-}\varepsilon(\varnothing \cup \{B, C\} \cup \varnothing \cup \{E\})$
$= C\text{-}\varepsilon(\{B, C, E\})$
$= C\text{-}\varepsilon(B) \cup C\text{-}\varepsilon(C) \cup C\text{-}\varepsilon(E)$
$= \{B\} \cup \{A, C, D, E\} \cup \{A, E\}$
$= \{A, B, C, D, E\}$

$\delta'(D, b) = C\text{-}\varepsilon(\delta(C\text{-}\varepsilon(D), b))$
$= C\text{-}\varepsilon(\delta(\{A, C, D, E\}, b))$
$= C\text{-}\varepsilon(\delta(A, b) \cup \delta(C, b) \cup \delta(D, b) \cup \delta(E, b))$
$= C\text{-}\varepsilon(\{B\} \cup \{D\} \cup \{A, B, D\} \cup \{E\})$
$= C\text{-}\varepsilon(\{A, B, D, E\})$
$= C\text{-}\varepsilon(A) \cup C\text{-}\varepsilon(B) \cup C\text{-}\varepsilon(D) \cup C\text{-}\varepsilon(E)$
$= \{A\} \cup \{B\} \cup \{A, C, D, E\} \cup \{A, E\}$
$= \{A, B, C, D, E\}$

$\delta'(E, a) = C\text{-}\varepsilon(\delta(C\text{-}\varepsilon(E), a))$
$= C\text{-}\varepsilon(\delta(\{A, E\}, a))$
$= C\text{-}\varepsilon(\delta(A, a) \cup \delta(E, a))$
$= C\text{-}\varepsilon(\varnothing \cup \{E\})$
$= C\text{-}\varepsilon(\{E\})$
$= C\text{-}\varepsilon(E)$
$= \{A, E\}$

$\delta'(E, b) = C\text{-}\varepsilon(\delta(C\text{-}\varepsilon(E), b))$
$= C\text{-}\varepsilon(\delta(\{A, E\}, b))$
$= C\text{-}\varepsilon(\delta(A, b) \cup \delta(E, b))$
$= C\text{-}\varepsilon(\{B\} \cup \{E\})$
$= C\text{-}\varepsilon(\{B, E\})$
$= C\text{-}\varepsilon(B) \cup C\text{-}\varepsilon(E)$
$= \{B\} \cup \{A, E\}$
$= \{A, B, E\}$

RESULTADO

δ'	a	b
→A	∅	{B}
*B	{A, C, D, E}	{A, C, D, E}
*C	{A, B, C, D, E}	{A, B, C, D, E}
*D	{A, B, C, D, E}	{A, B, C, D, E}
E	{A, E}	{A, B, E}